

South Atlantic Coastal Study

Report Roll-out Meeting: Alabama
October 18, 2021

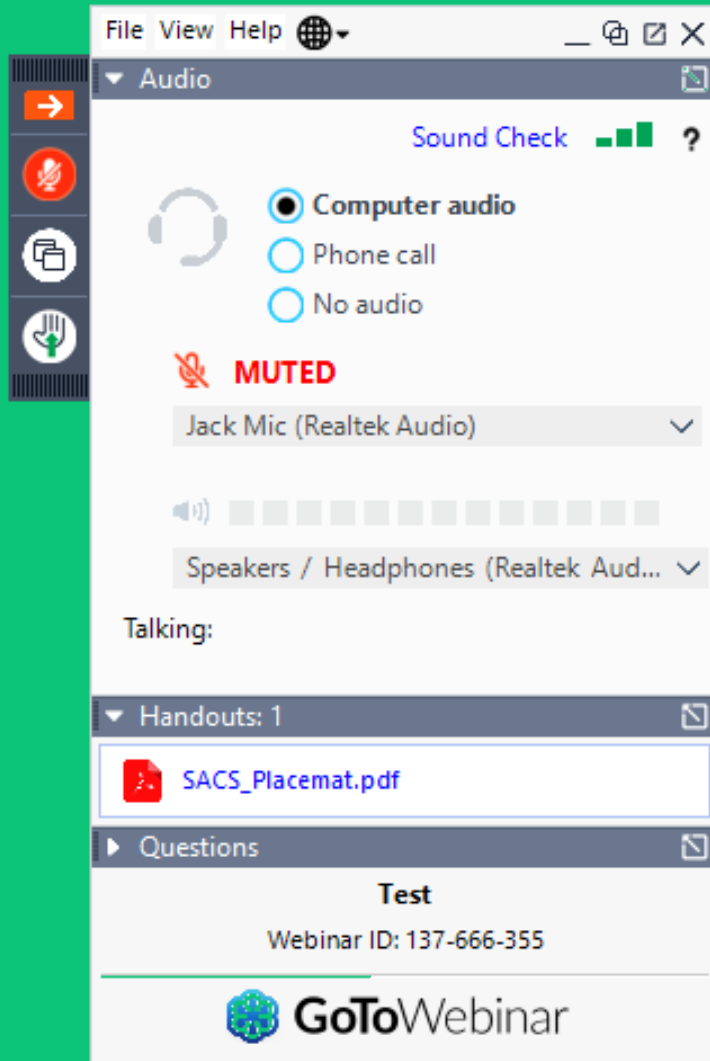


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Housekeeping



- Lines will start as muted but can be opened for discussion. Please mute yourself when not speaking to limit background noise.
 - Use the raise hand feature to alert staff you have a comment
- Questions and comments can also be submitted via the chat box throughout the presentation
 - If having technical difficulties reach out via chat to staff.
- A PDF of the slides is available in the Handouts section.



Team Introduction



Command Center Team

Ashleigh Fountain	Project Manager
Matt Schrader	Planning Lead
Drew Condon	Engineering Lead
Lisa Clark	Outreach
Kristina May	Environmental Lead
Trevor Lancaster	Geospatial Lead
Idris Dobbs	Economics Lead
Clay McCoy	RSM

CDM Smith

Donie Grimsley	Facilitator
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Mobile District Project Delivery Team

Meredith LaDart	Project Management
Tonya Harrington	Mobile District Planner
Elizabeth Godsey	Coastal Engineering
Wendy Weaver	Cultural Resources
Kat McConnell	Environmental
Kim Elmore	GIS Specialist
John Nielsen	Economist
Allan Annaert	Cost Engineer



Virtual Poll – What type of organization do you represent?



**Federal Agency/
Tribal Nations**

State/Local Agency

Academia

**Non-Governmental
Agency**

Other



South Atlantic Coastal Study (SACS) Report Roll-out Meeting: Agenda



Intro / Purpose

- Introductions
- Meeting Purpose
- Link to Released Report

SACS Overview

- Shared Vision
- Study Area
- Study Framework

Overview of Reports

- Main Report
- Technical Appendices
- Geoportal
- Alabama Appendix
- Focus Area Action Strategies

Comment Collection

- Report Access
- Comment Collection
- Feedback Consideration



Meeting Purpose



1

Provide a brief overview of the South Atlantic Coastal Study (SACS) reports and products

2

Present DRAFT SACS findings and recommendations for the state of Alabama

3

Walk through report structure and organization to facilitate stakeholder review



SACS Report Now Available

<https://www.sad.usace.army.mil/SACS/>

South Atlantic Coastal Study - SACS



SACS Shared Vision

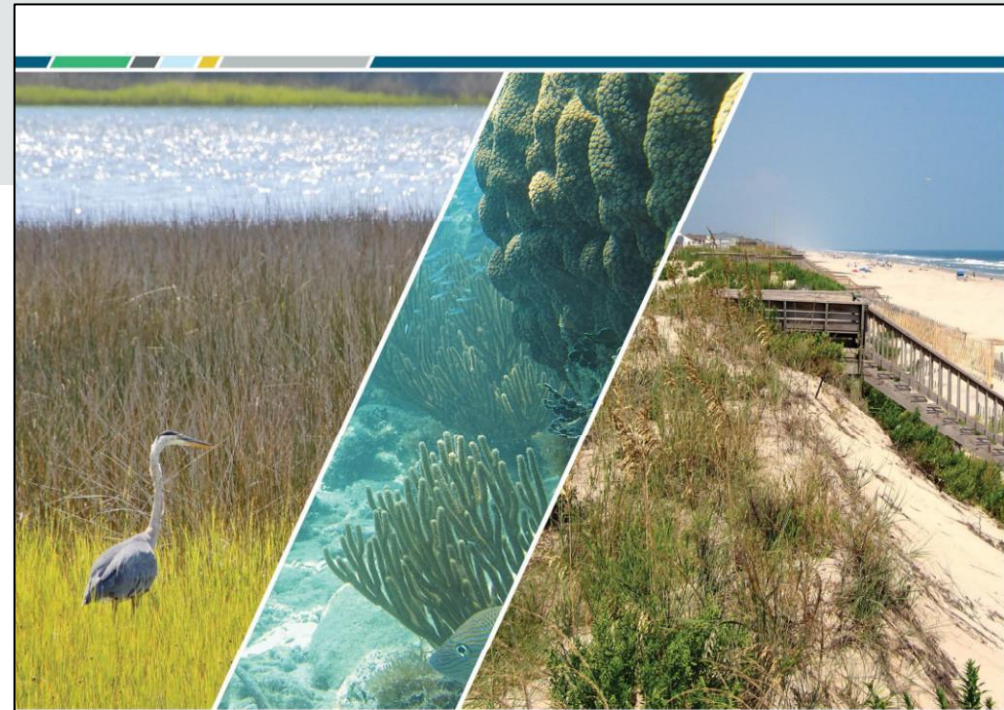
The SACS vision is to provide a common understanding of risk from coastal storms and sea level rise to support resilient communities and habitats. This collaborative effort will leverage stakeholders' actions to plan and implement cohesive coastal storm risk management strategies along the South Atlantic and Gulf Coast shorelines, including the territories of Puerto Rico and the U.S. Virgin Islands.

SACS Draft Reports

SACS Draft Reports are available for review and comment through November 15, 2021. Comments can be provided through the following form: https://www.surveymonkey.com/r/SACS_comments



- | | | | |
|-------------------------------------|-------------------|-------------------------|------------------------------|
| SACS Main Report | Outreach Appendix | Florida Appendix | Puerto Rico Appendix |
| Engineering Appendix | Alabama Appendix | Mississippi Appendix | South Carolina Appendix |
| Geospatial Appendix | Georgia Appendix | North Carolina Appendix | U.S. Virgin Islands Appendix |
| Recommendations Summary Spreadsheet | | | |



SOUTH ATLANTIC COASTAL STUDY (SACS) Main Report



FINAL DRAFT REPORT
OCTOBER 2021



Virtual Poll – What involvement have you had in the SACS process?



**Attended Field Workshop
(December 2019)**

**Attended Focus Area
Webinars
(July – Dec 2020)**

**Attended Environmental/
Cultural/ Military
Webinars
(July – Dec 2020)**

**Attended Any SACS
Quarterly Webinar**

No Previous Involvement



SACS Overview





SACS Shared Vision



The SACS vision is to provide a common understanding of risk from coastal storms and sea level rise to support resilient communities and habitats. This collaborative effort will leverage stakeholders' actions to plan and implement cohesive coastal storm risk management strategies along the South Atlantic and Gulf Coast shorelines, including the territories of Puerto Rico and the U.S. Virgin Islands.

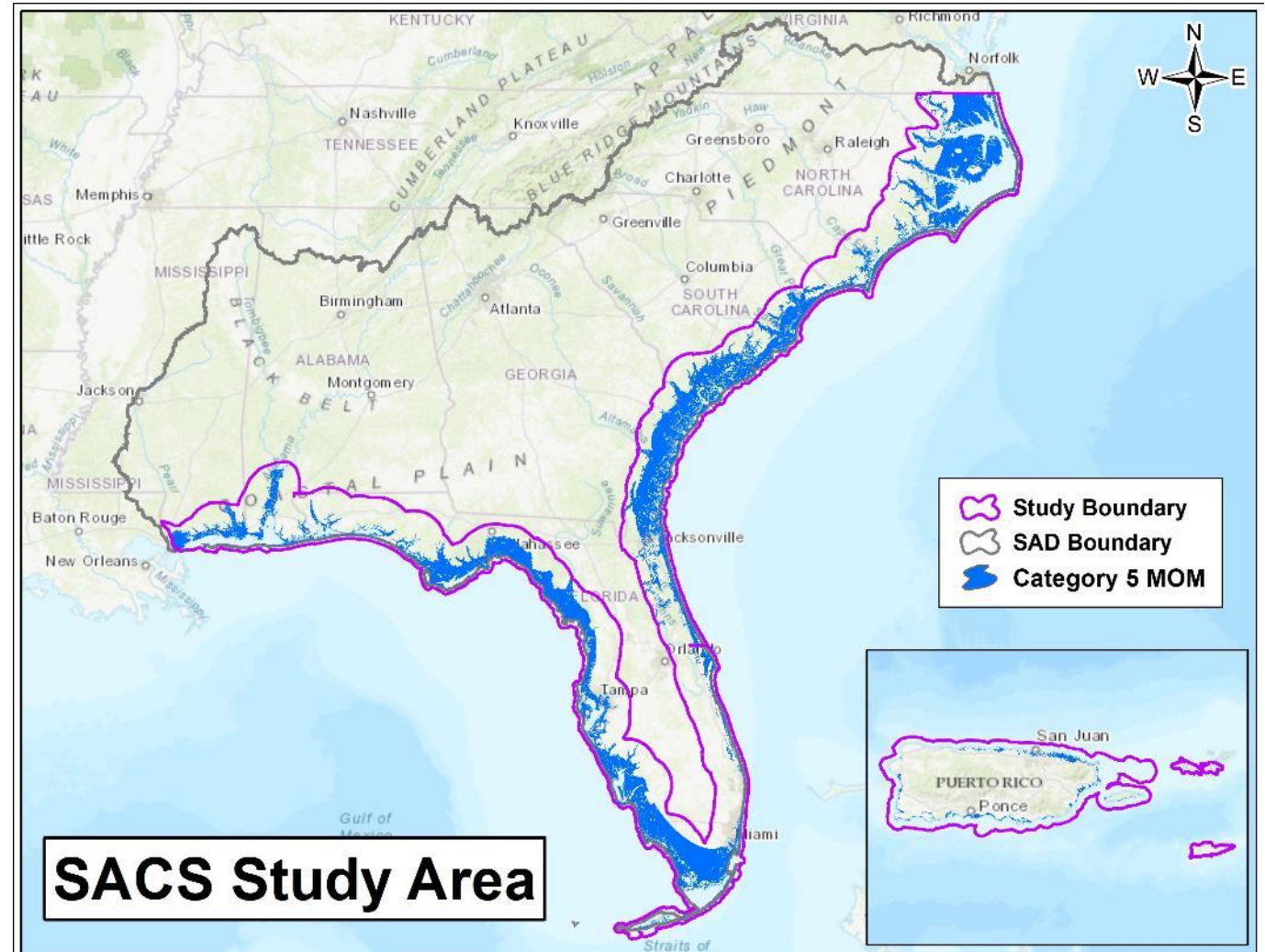




Study Area

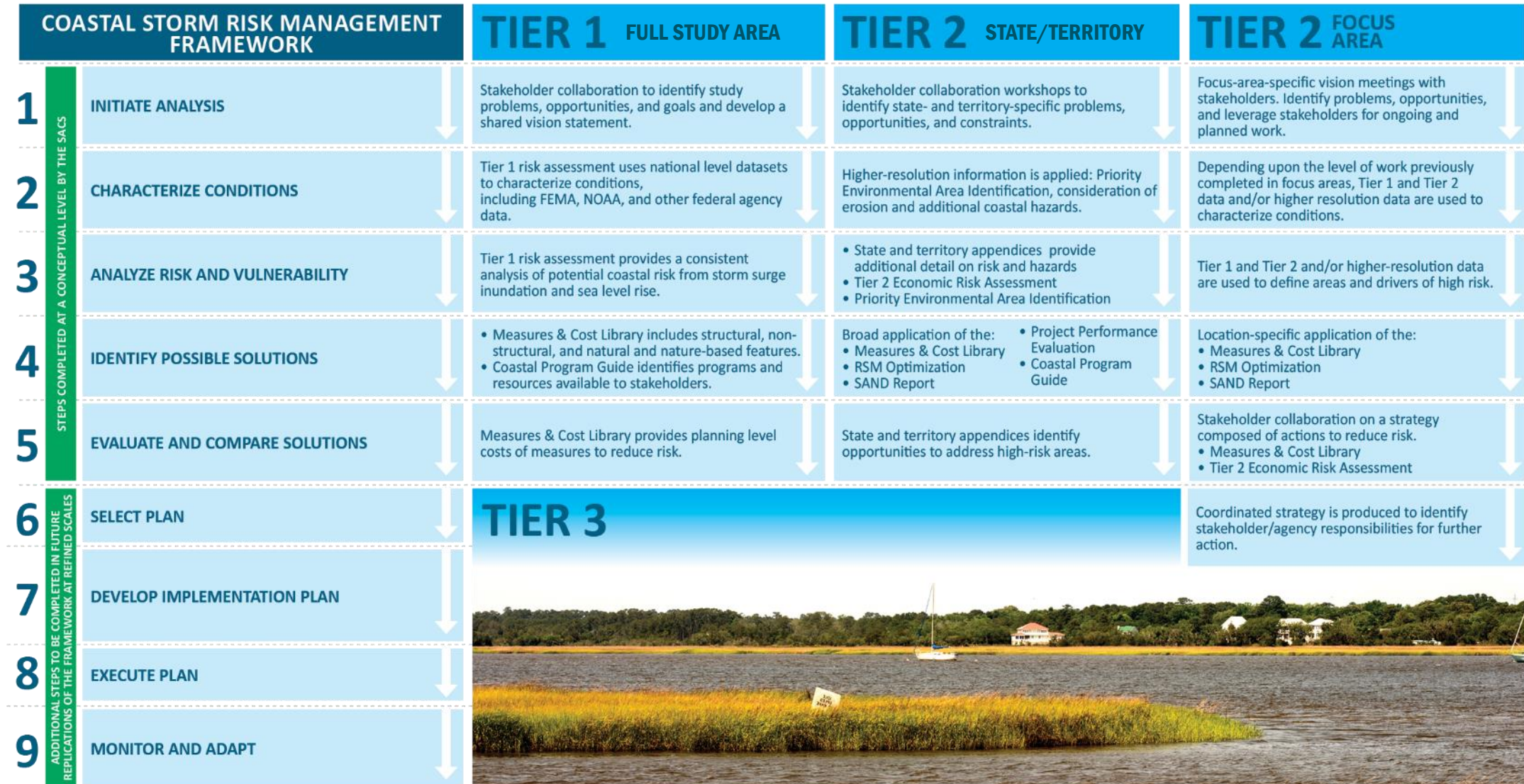


Approximately 65,000 miles of tidally influenced coastline in the South Atlantic Division area of responsibility affected by sea level rise where hurricane and storm damages are occurring or are forecast to occur.



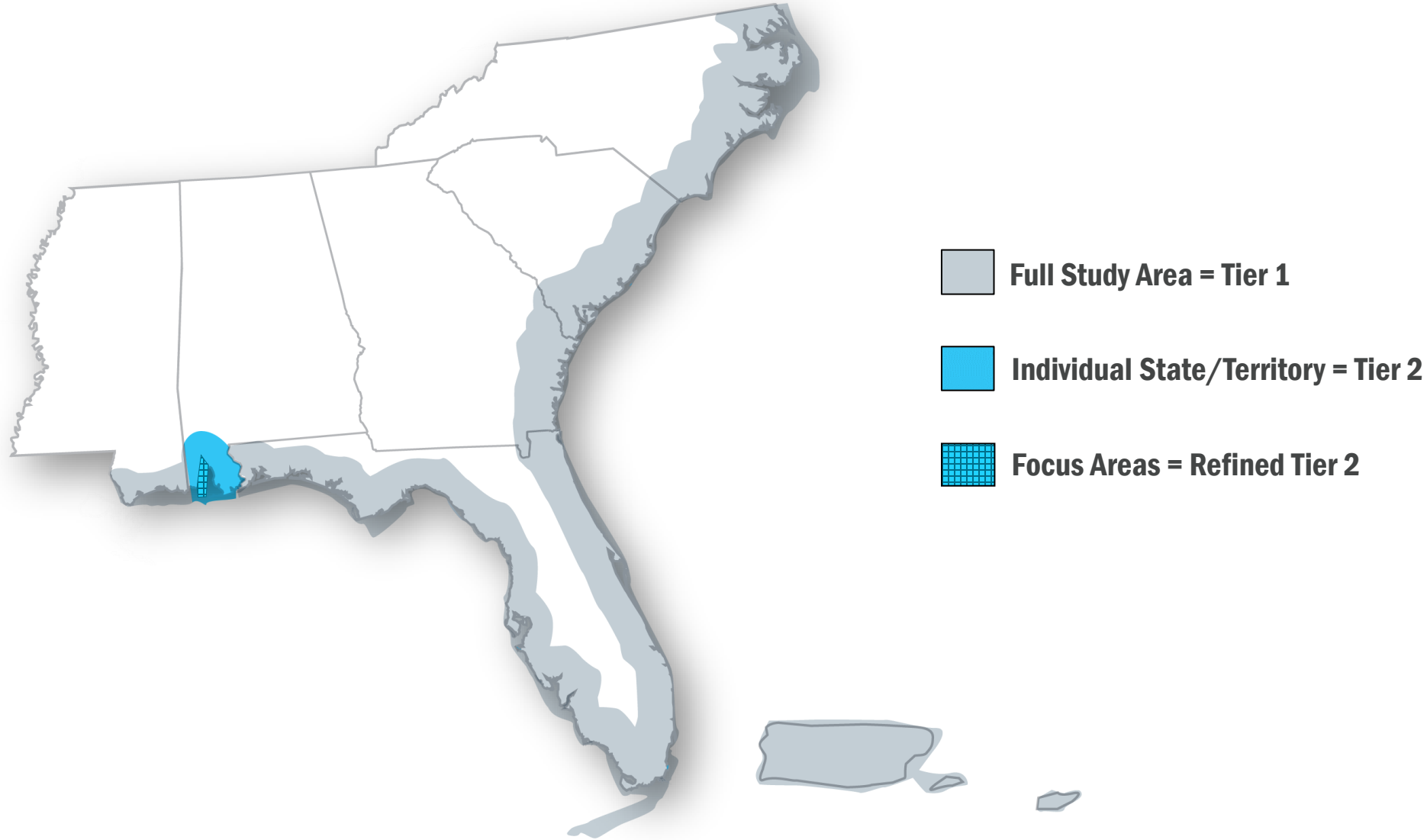


Applying the Framework





Applying the Framework: Geographic Scales





Overview of Reports

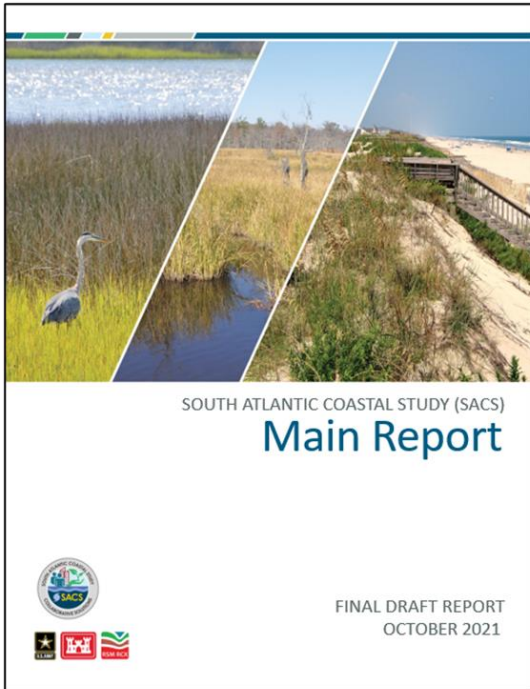




SACS Reports and Products



South Atlantic Coastal Study Main Report



Appendices

Engineering Appendix

Geospatial Appendix

Outreach Appendix

Alabama Appendix

Georgia Appendix

Florida Appendix

Mississippi Appendix

North Carolina Appendix

Puerto Rico Appendix

South Carolina Appendix

U.S. Virgin Islands Appendix

Focus Area Action Strategies

AL: Western Mobile Bay and Tensaw River Delta

GA: Chatham County

GA: Glynn County

FL: Northeast Florida

FL: East Central Florida

FL: Southeast Florida

FL: Southwest Florida

FL: Tampa Bay Region

FL: Panama City, Panama City Beach, Mexico Beach, and Tyndall Air Force Base

FL: Pensacola, Fort Walton Beach, and Destin

MS: Greater Pascagoula

MS: Biloxi-Gulfport

NC: Dare County and Ocracoke

NC: Carteret and Craven Counties

NC: New Hanover and Brunswick Counties

PR: Cabo Rojo

PR: Isabela to Rincón

SC: Grand Strand

SC: Charleston Metro

USVI: Christiansted

USVI: Charlotte Amalie

Supporting Documents

SACS Geoportal

Measures and Costs Library Report

Institutional and Other Barriers Report

Coastal Program Guide

2020 Regional Sediment Management Optimization Update

Planning Aid Report

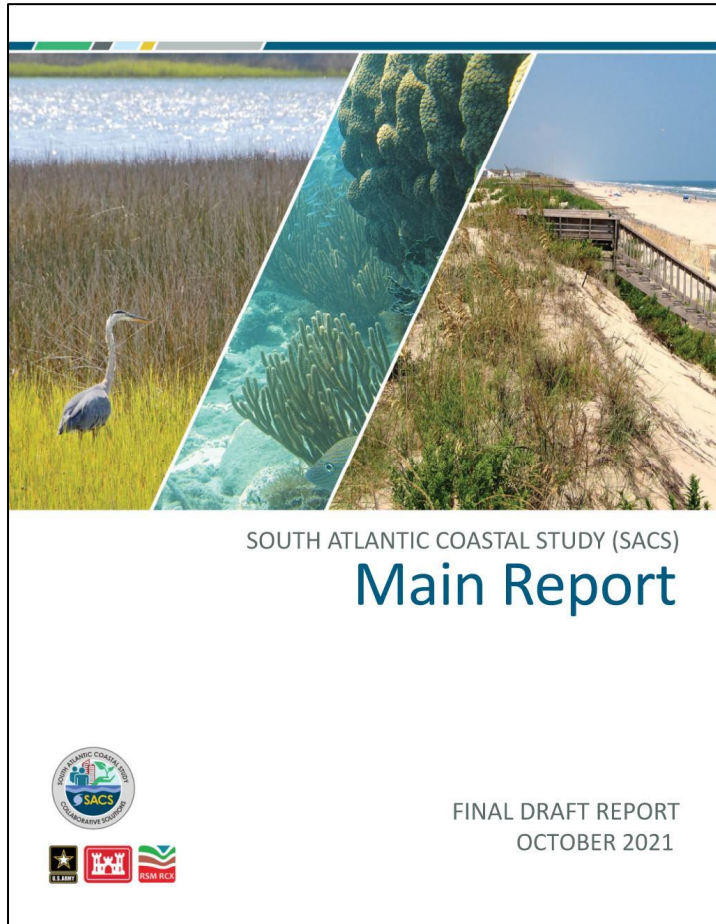
Sand Availability and Needs Determination (SAND) Report

Environmental Technical Report

Tier 2 Economic Risk Assessment Report



Main Report Organization



Executive Summary

Section 1 – Study Overview

Section 2 – Stakeholder Engagement

Section 3 – Findings

Section 4 – Applying the Framework: Tier1

Section 5 – Applying the Framework: Tier 2

Section 6 – Institutional and Other Barriers

Section 7 – Recommendations



Section 3 - Regional Findings



1. Significant coastal storm risk and consequential flooding exists throughout the study area and will dramatically increase as sea level rises and critical thresholds are surpassed.
2. Significant risk exists where development practices have created areas of dense infrastructure with limited or nonexistent adaptive capacity to contend with changing conditions.
3. Existing CSRM actions that are deemed effective should be maintained and modified in relation to changing conditions and should serve as examples for needed actions.
4. Regional sediment management (RSM) and beneficial use of dredged material strategies support economically sustainable and environmentally acceptable solutions to reduce coastal risk and must continue to be advanced throughout the region.
5. Joint responsibility is critical to risk management, as the footprint and complexity of coastal risk is continuing to increase. Because all stakeholders play a part in managing risk, collaborative planning among local, state, tribal, and federal entities, NGOs, academia, business, and industry must improve and burgeon actions to reduce risk.
6. Shared tools and information will assist in assessing, communicating, and addressing risk.
7. Natural and Nature-Based Features (NNBFs) are viable options for reducing coastal risk and providing co-benefits.
8. Where avoidance of risk is not possible, communities should adopt combinations of solutions, including nonstructural, structural, NNBF, and programmatic measures to manage risk.
9. RSM can supply sediment sources applicable for risk management efforts that provide monetary and nonmonetary benefits.



Recommendation Organization



CATEGORIES FROM SACS AUTHORITY

Activities and Areas Warranting Further Analysis	
Address Barriers Preventing Comprehensive Risk Management	
Design and Construction Efforts	
Recommendations on Previously Authorized USACE Construction Projects	
Regional Sediment Management Practices	
Study Efforts	

IMPLEMENTATION TIMING

Timing for implementation is influenced by stakeholder collaboration needed, technical complexity, stakeholder interest, and other factors.

Near-term (< 5 years):

- Less complex
- Significant stakeholder momentum toward implementation, short implementation timeframe
- Maintain and adapt what works, implement ongoing/planned efforts

Mid-term (5-10 years) :

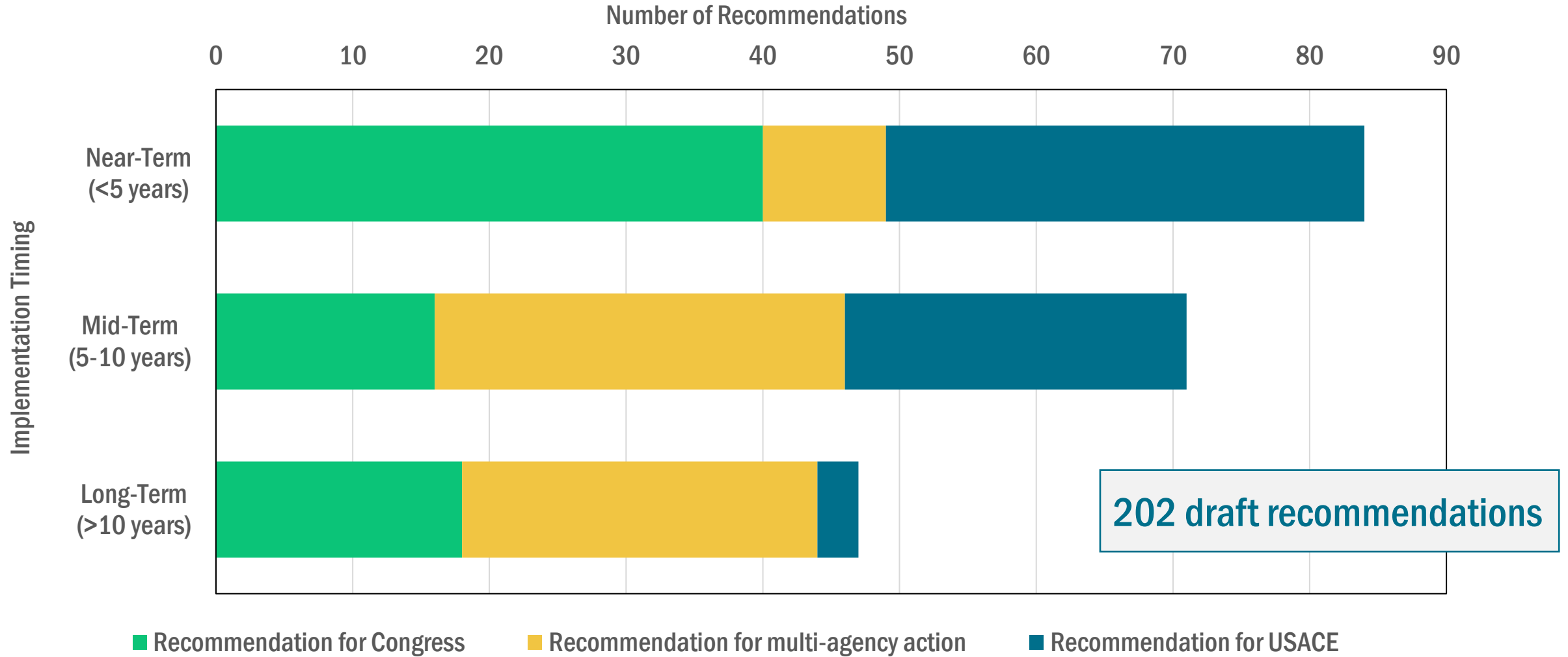
- Increased complexity
- Advance and implement emerging efforts

Long-term (> 10 years):

- More complex recommendations requiring significant stakeholder coordination before implementation
- Example: Large scale implementation of changes to land-use, zoning, or building codes



Recommendations for Congress, Multi-Agency Action, and USACE





Recommendation Summary Spreadsheet

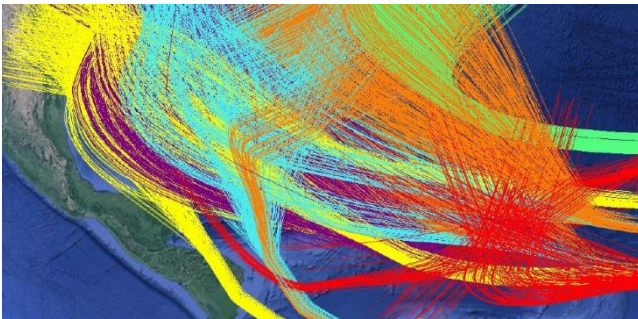


- Recommendation summary spreadsheet available to download from SACS website
- Able to sort and filter by available categories

Rec ID	Authority Category	Recommendation for	Implementation Timing	State/ Territory	Regional Priority	Recommendation	Description	Next Step to Implementation
1	Activities and Areas Warranting Further Analysis	Recommendation for USACE	Near-Term (<5 years)	All	Regional Priority	Acknowledge and consider environmental benefits as a factor in deciding on a recommended plan in all future CSRMs studies that include beach nourishment. Use methods that account for environmental benefits in traditional habitat units and economic quantities (monetized).	Given the significant environmental benefits incidentally provided by many beach nourishment projects, and in accordance with the Assistant Secretary of the Army (Civil Works) policy directive, "Comprehensive Documentation of Benefits in Decision Document," efforts to fully acknowledge and consider environmental benefits as a factor in deciding on a recommended plan should be made in all future CSRMs studies that include beach nourishment. Future work should also include methods to account for environmental benefits, not only in traditional habitat units, but also in economic quantities.	guidance/policy
2	Activities and Areas Warranting Further Analysis	Recommendation for USACE	Near-Term (<5 years)	All	Regional Priority	SACS key products should be maintained and updated by USACE and utilized, as applicable, by USACE and stakeholders to support consistent, efficient, and effective analyses.	SACS products can assist project delivery teams more efficiently carry out study efforts by providing a common set of tools and products. Products also provide users and reviewers with a common baseline/understanding to support more efficient and effective analyses and reviews. SACS key products and associated training on their use should be provided within USACE and to interested stakeholders throughout the study area, ideally in joint training with other federal and state agencies incorporating additional tools and products.	funding
3	Activities and Areas Warranting Further Analysis	Recommendation for multi-agency action	Mid-Term (5-10 years)	All	Regional Priority	Advance ongoing interagency work to improve understanding and application of compound flooding effects on existing and future coastal storm risk.	Separate from the SACS, the U.S. Congress has directed the USACE ERDC to collaborate with academia to conduct research into compound flooding. In addition, USACE is partnering with other federal agencies (e.g., NOAA, FEMA, U.S. Geological Survey [USGS]) and other non-governmental agencies. Significant work is required to establish a cohesive framework to proactively manage the risk presented by compound flooding events. At maturity, this framework should provide an encompassing approach to all aspects of compound flooding effects in coastal regions subject to both coastal and pluvial/fluviol flood-risk drivers, updating/developing technical guidance, advancing long-term monitoring of data collection, enhanced numerical modeling, and establishing a robust statistical approach to the coincidence of events that contribute to compound flooding.	stakeholder collaboration

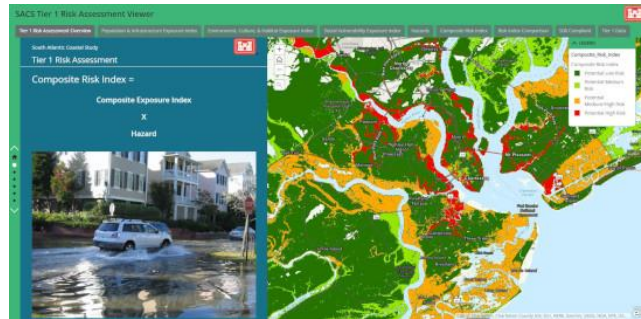
ENGINEERING

- Details risk associated with coastal hazards such as storm surge, wave attack, and erosion under current and future conditions
- Discusses engineering components of the coastal hazards system and sea level change analysis



GEOSPATIAL

- Details the Tier 1 Risk Assessment
- Discusses the geospatial datasets generated to better understand coastal risk, environmental risk, economic damages, and risk reduction efforts across the study area



OUTREACH

- Describes the Engagement and Communications Plan which is the framework used for planning and executing communications associated with the SACS
- Details agency collaboration, stakeholder engagement, and communication methods and tools





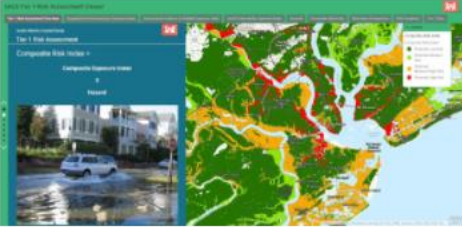
SACS Geoportal



- Provides access to study datasets, products and documentation
- Zoom into datasets of interest
- Download datasets for individual use

SACS Geoportal


<https://data-sacs.opendata.arcgis.com/>



Tier 1 Risk Assessment

A regional level analysis of potential flooding risk in coastal areas.


[Details](#) [View](#)



Tier 2 Economic Risk Assessment

Dollar damages and consequences data for existing and future conditions.


[Details](#) [View](#)



Environmental Analysis

Environmental Resources Inundation Vulnerability, Risk, and Priority Environmental Areas.

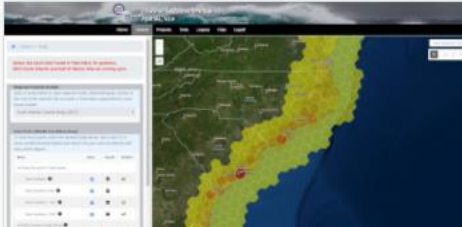
[Details](#) [View](#)



Sand Availability and Needs Determination

To maintain beaches, how much sand is needed and where will it come from?


[Details](#) [View](#)



Coastal Hazards System

Wave and water levels derived from numerical modelling.

[Details](#) [View](#)



State and Territory Appendices

State and Territory-specific geospatial data referenced in the State and Territory Appendices.

[Details](#) [View](#)

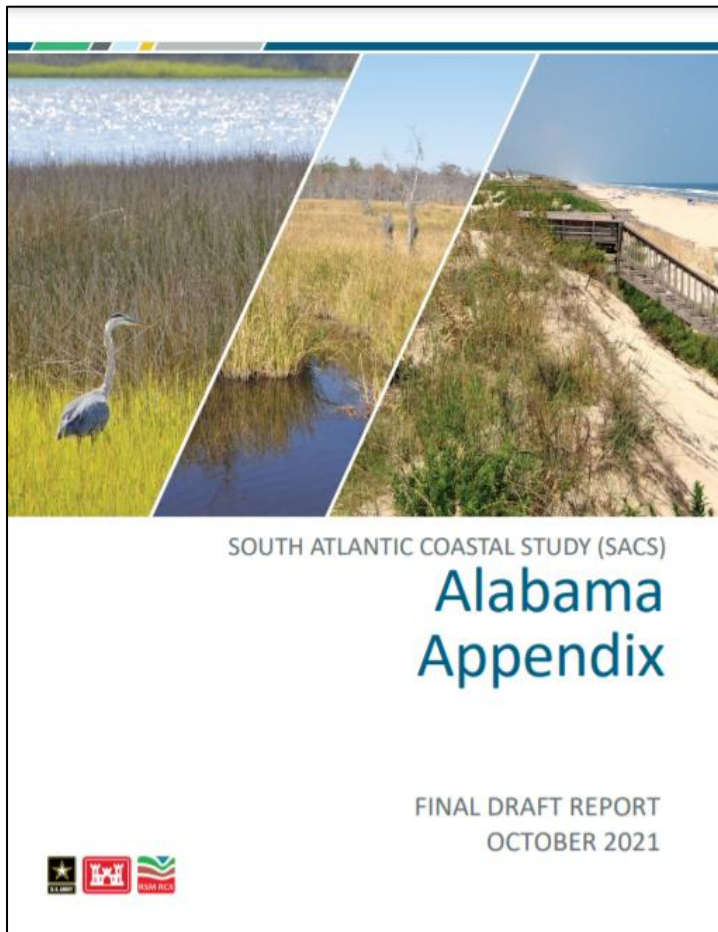


Questions



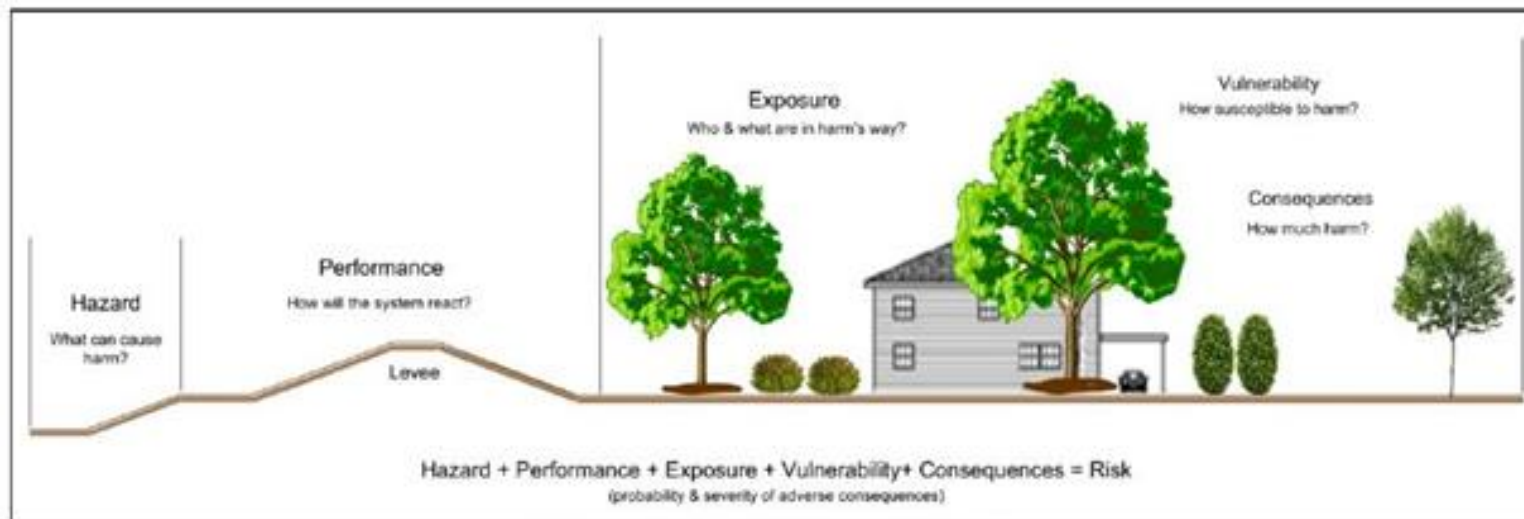


Alabama Appendix Organization



Report Section	Content	CSRM Framework Step
Section 1: Introduction	Objective of the document and organization of the report	Step 1: Initiate Analysis
Section 2: Agency Coordination and Collaboration	Overview of the collaborative efforts of the SACS study including stakeholder engagement, workshops, informational sessions, and federal partners	
Section 3: Overview of Existing and Future Conditions	Provides geographic, climatic, and political context for the analysis and an overview of existing and expected future conditions	Step 2: Characterize Conditions
Section 4: Risk Assessment	Application of the Tier 1 Risk Assessment and development of the Alabama-specific Tier 2 analysis used to identify high-risk areas	Step 3: Analyze Risk and Vulnerability
Section 5: Managing Risk	Overview of resources to support Alabama resiliency efforts, including federal directives, resources, and funding to help communities better leverage needed resources	Step 4: Identify Possible Solutions
Section 6: Institutional and Other Barriers	Identification of institutional and other barriers impeding further risk reduction efforts	
Section 7: Recommendations to Address Risks and Vulnerabilities	Recommendations of actions to address the risks identified in Section 4	Step 5: Evaluate and compare solutions

Section 4 - Risk Assessment



Definitions of risk components as utilized in the SACS include:

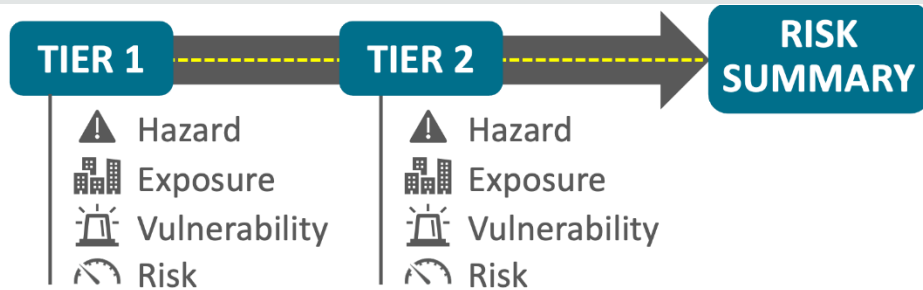
Hazard – In a general sense, hazard is anything that is a potential source of harm to a valued asset (human, animal, natural, economic, and social)

Exposure – Describes who and what may be harmed by the flood hazard. Exposure incorporates a description of where the flooding occurs at a given frequency, and what assets exist in that area.

Vulnerability – Susceptibility of harm to human beings, property, and the environment when exposed to a hazard. Depth-damage functions, depth-mortality functions, and other similar relationships can be used to describe vulnerability.

Risk – Combination of likelihood and harm to people, property, infrastructure, and other assets.

Section 4 - Risk Assessment



- Analysis performed per planning reach
 - **Tier 1:** summary of findings from the consistent assessment across study area
 - **Tier 2:** more refined state-specific assessment
 - Economic risk
 - Risk to environmental resources
 - Risk to cultural resources

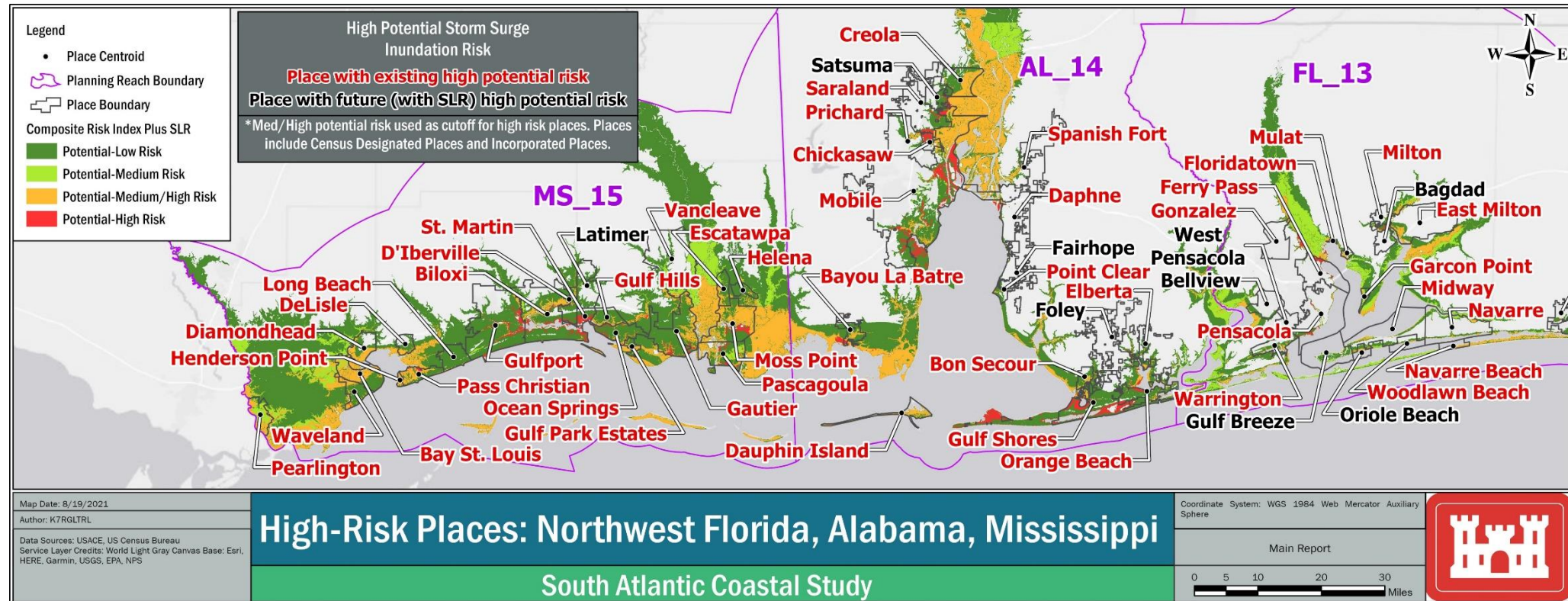




Alabama Risk Findings



- 7 High-Risk Locations in existing conditions, and 7 High-Risk Locations in future conditions
- \$91 million in estimated annual damages in existing conditions
- \$175 million in future conditions with sea level rise
- 9 Priority Environmental Areas Identified





Priority Environmental Areas

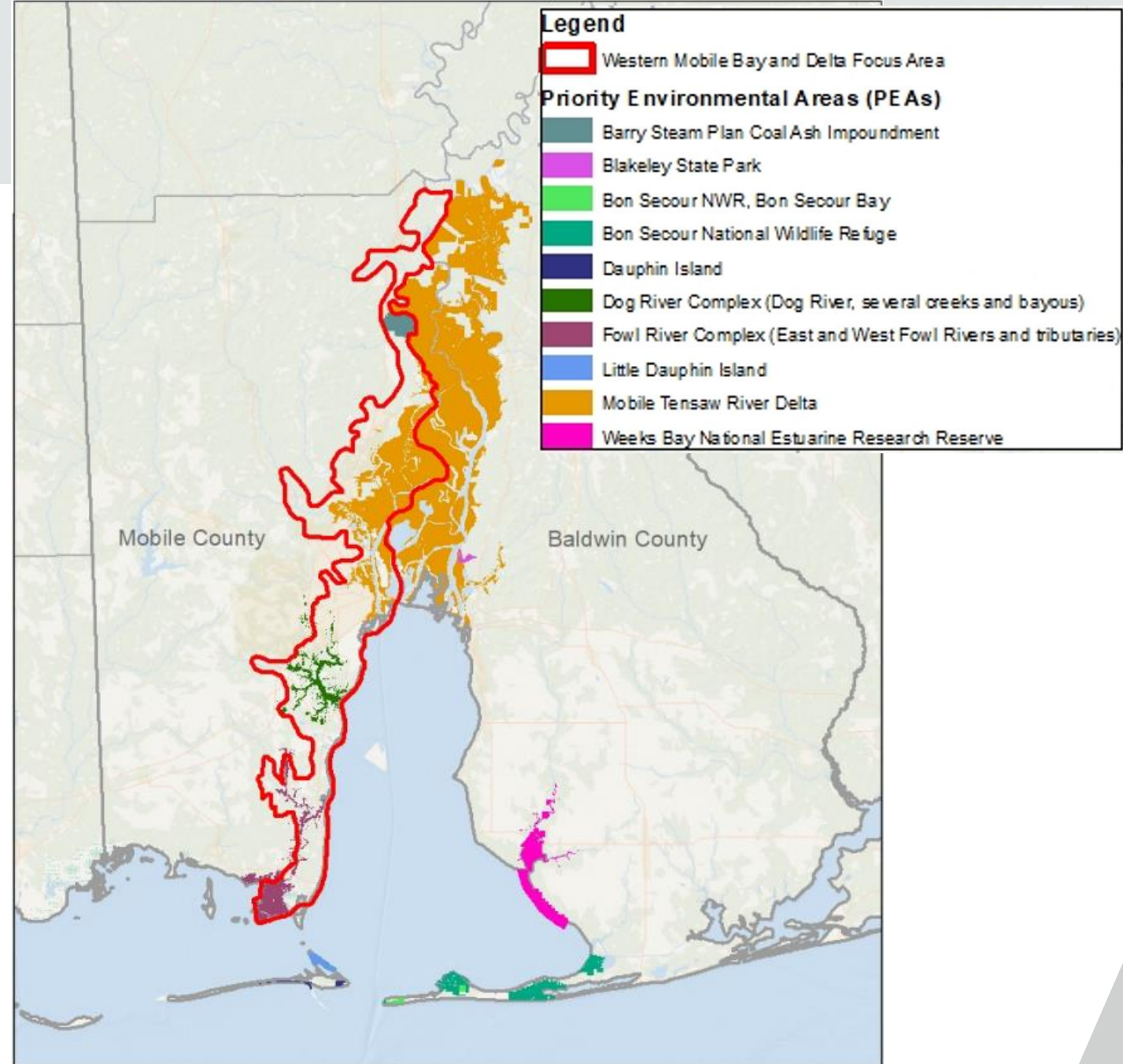
SACS Environmental Analysis identifies the areas at high risk to coastal storm damages as a result of sea level rise

Vulnerability x probability of the hazard
= risk

Identify criteria to locate highest-risk
(top-tier) areas

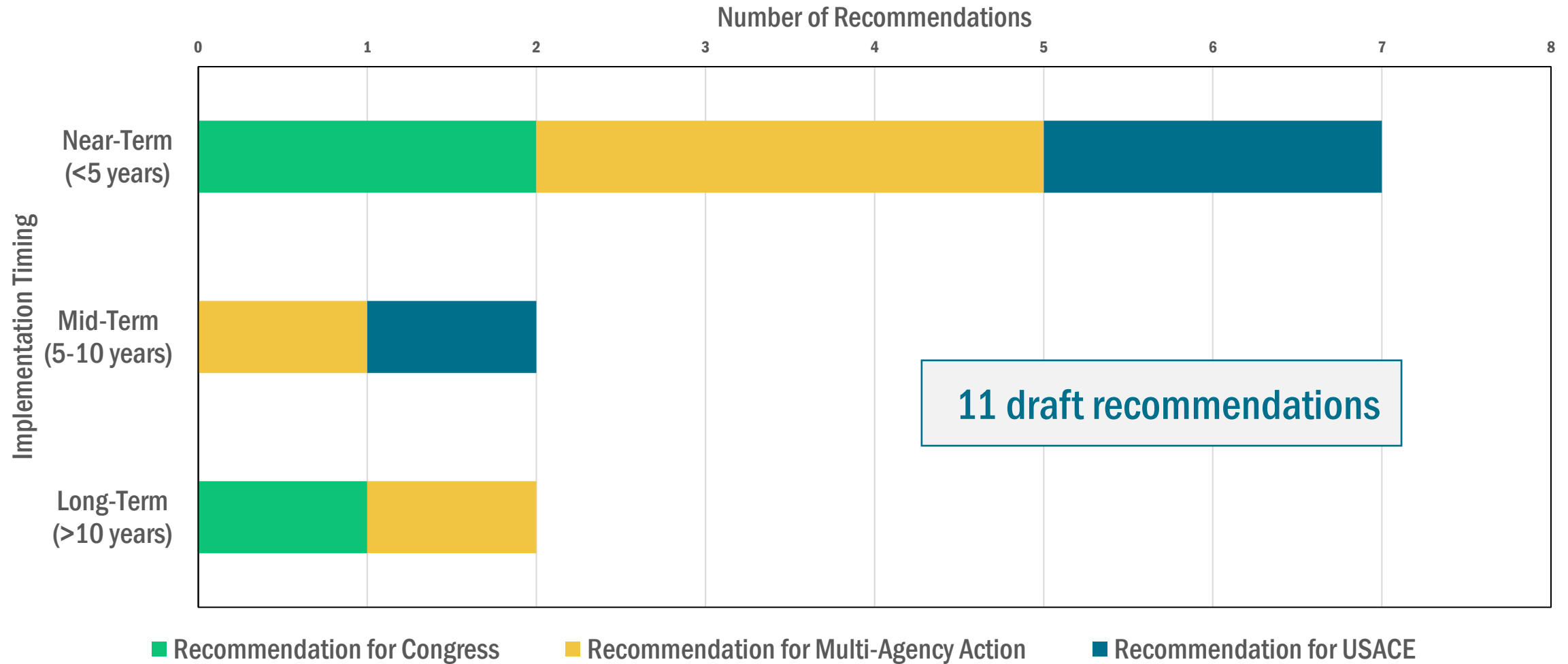
Examples:

- Critical habitats
- Suitable habitats for listed species
- Managed lands
- State or other entity identified priority areas





Alabama Recommendations





Alabama State Priority Recommendations



Authority Category	Implementation Timing	Recommendation For	Recommendation	Description
Study Efforts (follow-on USACE feasibility study)	Near-Term (<5 years)	Congress	A study on reducing erosion along Mobile Bay.	This study would consider a full array of measures including strategies for sediment placement to reduce erosion.
Study Efforts (follow-on USACE feasibility study)	Near-Term (<5 years)	Congress	Study to address combined flooding effects in Mobile, AL	This recommendation would identify flood risk and solutions in urban areas of Mobile. This could be accomplished as a 3x3 study. A separate effort would likely be needed to conduct and evaluate the availability of engineering models and identify any model development that may need to occur.

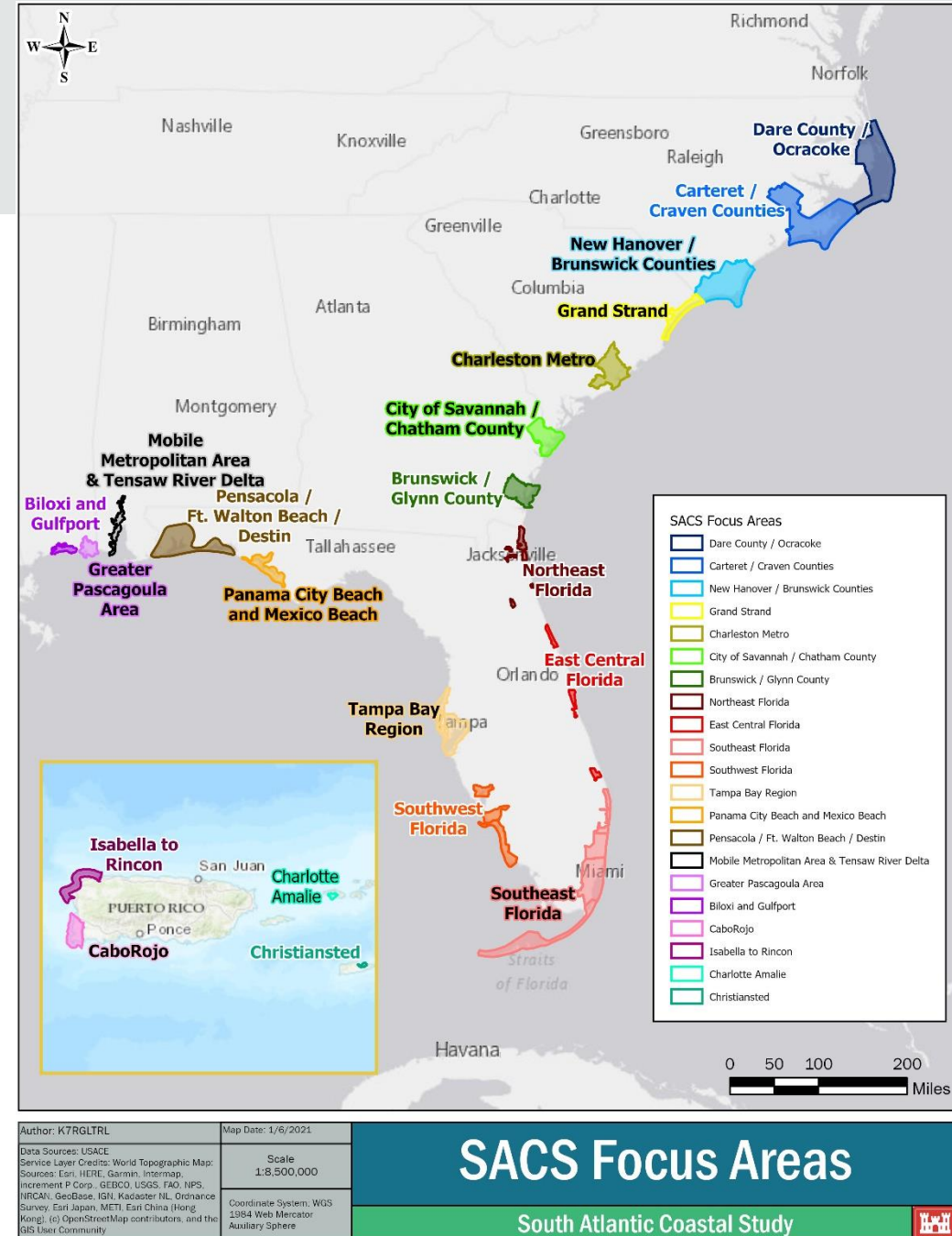


SACS Focus Areas

“...a report recommending specific and detailed actions to address the risks and vulnerabilities...” -WRDA’16, Sec. 1204

Focus Areas:

- Represent areas of highest risk
- Serve as examples of how Framework can be applied in other high-risk locations
- Twenty-one focus areas throughout the study area
- Minimum of one focus area in each state/territory
- Focus Area Action Strategies developed for each focus area using SACS key products and multiple agencies’ tools





Focus Area Action Strategy Organization



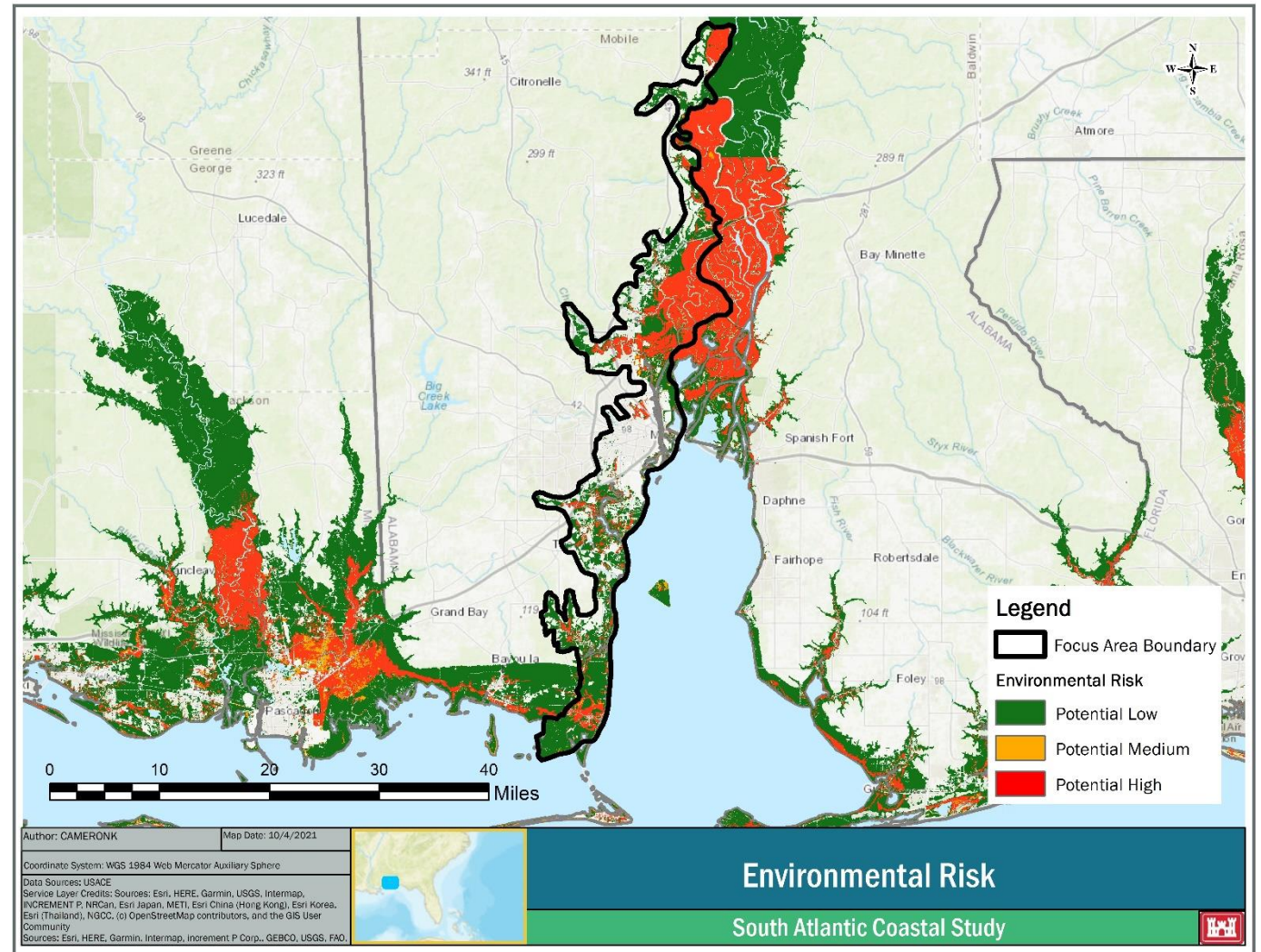
SOUTH ATLANTIC COASTAL STUDY (SACS)
**Western Mobile Bay
and Tensaw River
Delta Focus Area**

FINAL DRAFT REPORT
OCTOBER 2021

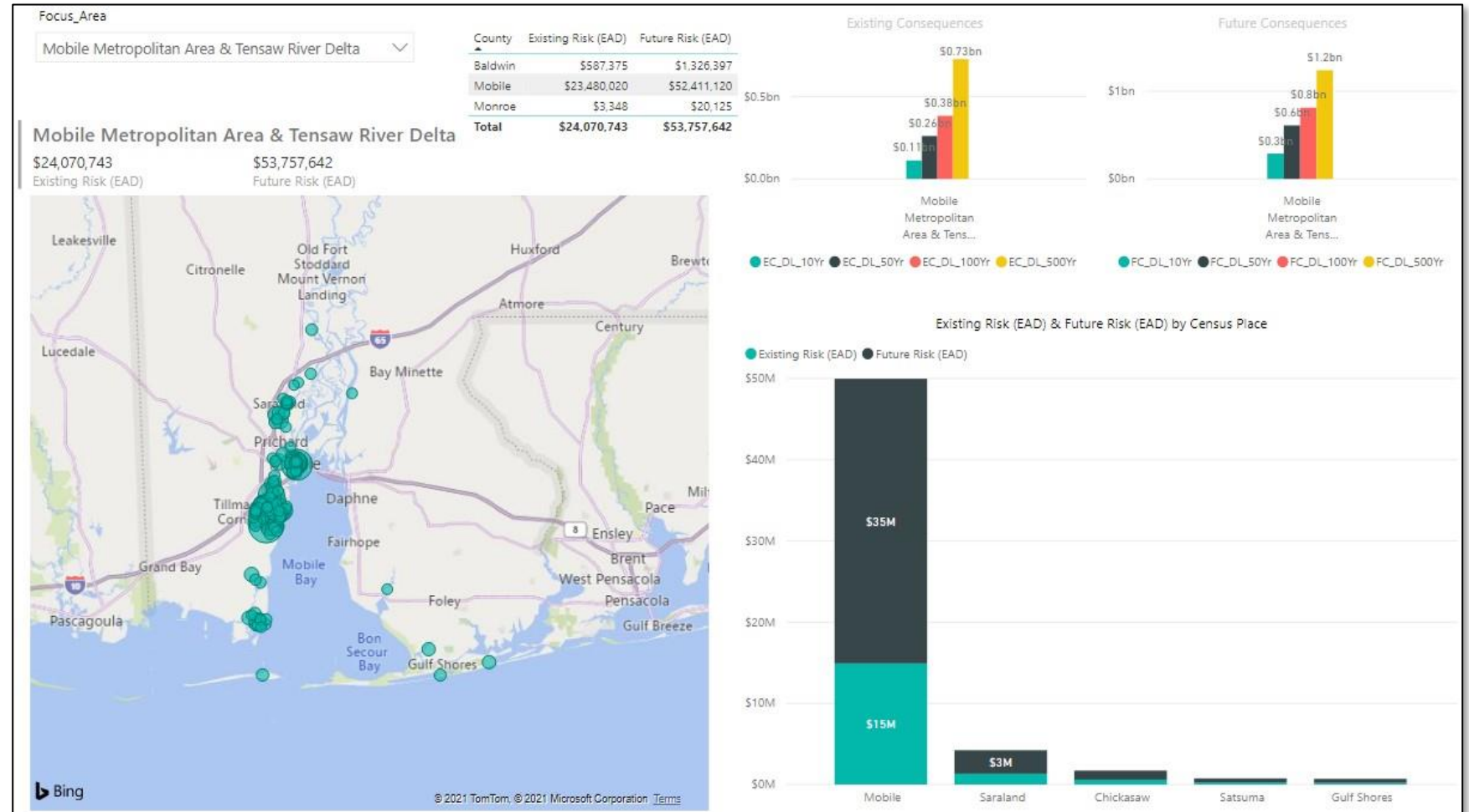


- Section 1 – Introduction
- Section 2 – Problems and Opportunities
- Section 3 – Objectives and Constraints
- Section 4 – Existing and Future Conditions
- Section 5 – Action Strategy Development
- Section 6 – Recommendations

- Environmental Resources most at-risk:
 - Freshwater forested wetlands
 - Cypress swamps
 - Brackish water emergent herbaceous marches
- Long-term increases in salinity diminishes the capacity to maintain biodiverse habitats



- Economic risk increases from \$24 million to \$54 million EAD with 3 feet of sea level rise.
- This does not account for economic risk to potential new developments, only existing infrastructure.





From Shared Vision to Strategy



SHARED VISION

“The focus area vision is to leverage stakeholders’ actions to plan and implement cohesive coastal storm risk management strategies in the Western Mobile and Tensaw Delta Area.”

Broad goal for the FAAS

- Address Problems
- Realize Opportunities

ACTIONS

Steps that incrementally contribute to the shared vision

- Nonstructural Actions
- Structural Actions
- Natural & Nature-Based Actions

STRATEGY

Combines actions to advance the shared vision



Lines of Defense Strategies



Developed actions were grouped into the following lines of defense (LOD) strategies:

- **LOD-1** – offshore island and breakwaters
- **LOD-2** – mainland beaches and dunes
- **LOD-3**– raised roadways, seawalls, and ring levees within highly populated centers
- **LOD-4** – preserves the estuarine and delta shoreline environment as much as possible
- **LOD-5** – explores actions that address risk reduction through long-term planning and policy changes

Strategy	Key Actions
LOD-1	Continue collaboration and partnership building among federal, state, local government, and non-governmental organizations to implement beneficial use and RSM strategies that align ecosystem restoration with line of defense strategies.
LOD-2	Conduct a shoreline management study to develop holistic strategies, including public outreach aimed at reducing erosion and increasing ecosystem benefits. This could be implemented as partnerships among state, local, nongovernmental, and federal organizations.
LOD-3	Develop a comprehensive strategy to use dredge material beneficially that aligns ecosystem restoration with line of defense strategies. This could be implemented as partnerships among state, local, nongovernmental, and federal organizations.
	Multiple program teams and funding sources collaborate to address nonstructural needs identified in local hazard mitigation plans.
LOD-4	Conduct a study to evaluate compound flooding effects in Mobile, Alabama.
	Conduct a study to evaluate opportunities for CSRM mitigation at locations with significant cultural heritage and socially vulnerable populations such as Africatown and Bayou La Batre.
	Multiple program teams and funding sources collaborate to implement watershed planning initiatives that align with CSRM.
LOD-5	Multiple program teams and funding sources collaborate to address risk to industrial and hazardous waste sites vulnerable to coastal storms and sea level rise.



Focus Area Action Strategy – Recommendations



Example recommendations from Western Mobile Bay and Tensaw River Delta

Authority Category	Implementation Timing	Recommendation For	Recommendation	Description
Activities and Areas Warranting Further Analysis	Near-Term (<5 years)	Multi-Agency Action	Develop Hazard Mitigation Plan Updates	The SACS supports the development of a hazard mitigation plan update for Mobile County, AL. This was identified as a need during the review of existing efforts and identified needs from other agency during the action strategy development. These updates would be completed by Mobile County.
Activities and Areas Warranting Further Analysis	Near-Term (<5 years)	Multi-Agency Action	Develop Watershed Management Plans	The SACS supports the development of watershed management plans for Mobile Bay. Multiple watershed plans are in development or have been identified as in need of an update. Watershed management plans include storm risk reduction components and include multiple agency member involvement.
Activities and Areas Warranting Further Analysis	Mid-Term (5-10 years)	Multi-Agency Action	Support local agencies with communication and communication tools	This recommendation is intended for all coastal Alabama and would provide an education opportunity for private landowners to improve their understanding of living shorelines.
Regional Sediment Management Practices	Near-Term (<5 years)	Multi-Agency Action	Continue to promote partnerships and collaboration on existing beneficial use and RSM opportunities	This recommendation will promote collaboration on existing beneficial use and RSM opportunities, especially those related to improving nesting habitat.
Regional Sediment Management Practices	Near-Term (<5 years)	USACE	Develop and/or update regional sediment management plans	The SACS supports the development of or updates to regional sediment management strategies for coastal Alabama within the vicinity of the Western Mobile Bay & Delta Focus Area.



Comment Collection





Submitting Your Comments



South Atlantic Coastal Study Main Report

Appendices

Engineering Appendix

Geospatial Appendix

Outreach Appendix

Alabama Appendix

Georgia Appendix

Florida Appendix

Mississippi Appendix

North Carolina Appendix

Puerto Rico Appendix

South Carolina Appendix

U.S. Virgin Islands Appendix

- Link to comment form is on the SACS website
- Comments will be considered but not responded to individually
- Comment period closes **November 15, 2021**

https://www.surveymonkey.com/r/SACS_comments



South Atlantic Coastal Study (SACS) Stakeholder Review Comments

Stakeholder, Agency, and Tribal Review Comment Sheet

The South Atlantic Coastal Study (SACS) vision is to provide a common understanding of risk from coastal storms and sea level rise to support resilient communities and habitats. This collaborative effort will leverage stakeholders' actions to plan and implement cohesive coastal storm risk management strategies along the South Atlantic and Gulf Coast shorelines, including the territories of Puerto Rico and the U.S. Virgin Islands. The Draft Reports consist of the SACS Main Report, technical appendices, state appendices, and focus area action strategies (FAAS) reports.

Prior to finalizing this Study, we seek your feedback on the report, appendices, and FAAS reports. It is our objective to ensure that the report is not only informative to Congress, but relevant and useful to you and others as a regional resource. Stakeholder, agency, and tribal partner input is critical to the validity of the assessment. Please provide your input through the following series of questions.



Requested Information

- Name
- Title
- Organization
- Town/City and State
- Approval to Contact
- Telephone Number
- Email Address



Comment Sheet

1) Numerous coastal storm risk management efforts are ongoing throughout the study area and cannot all be described or listed within the report. However, please provide any significant large-scale national, regional, state, or territory-wide efforts that are not mentioned and you feel should be considered for inclusion in the report.

2) Are you aware of data or reports cited in the draft report that have been superseded with updated information or reports/information not referenced?

3) Which finding(s), products, or information in the report could be most useful to you or your agency (if applicable)? Do you have recommendations on how it can be better organized or presented in the report?

4) Are there any other general comments on this report that you wish to provide?



Questions and Discussion



Looking Ahead

- OCT 2021:** Report Milestone: release of draft report for concurrent review
- OCT 2021:** District Draft Report Roll Out Webinars
- JAN 2022:** Incorporate comments into final report
- AUG 2022:** USACE South Atlantic Division approves final report





Thank You



ADDITIONAL INFORMATION

<https://www.sad.usace.army.mil/SACS/>

OUTREACH

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